A.D. 1880. Nov. 3. Nº 4494.
LAKE'S SPECIFICATION.

(1 SHEET)

FIG. 1.

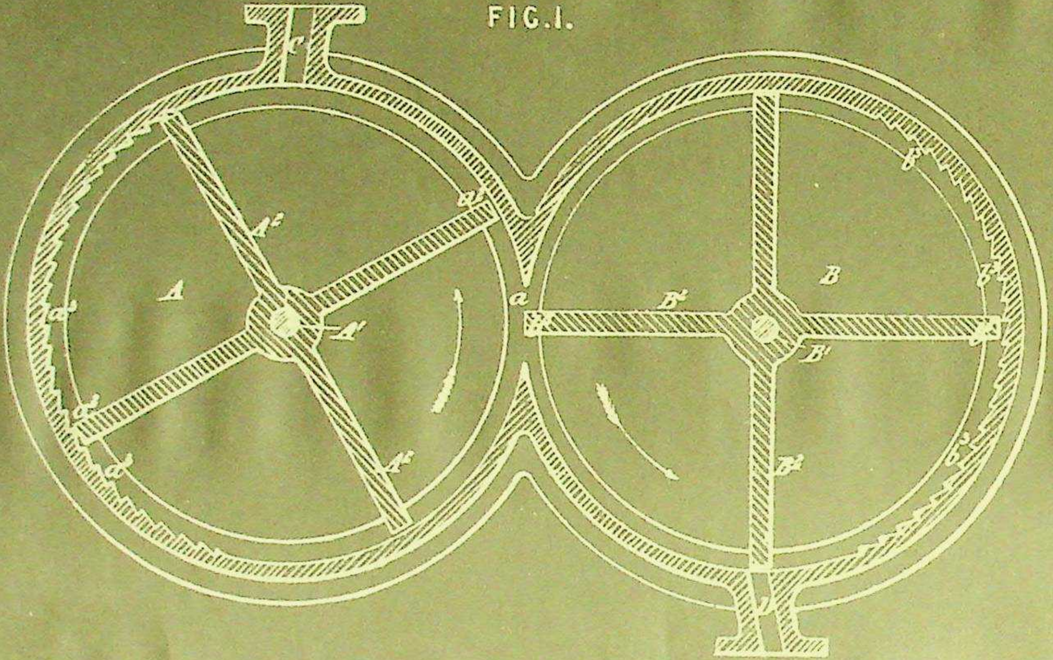
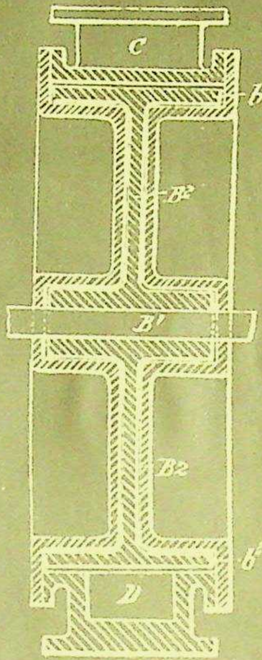


FIG. 2.



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99. FOODS AND BEVERAGES
426/11

1880

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RECORDED

A.D. 1880, 3rd NOVEMBER. N° 4494.

Preserving Fermented Liquids, &c.

LETTERS PATENT to William Robert Lake, of the Firm of Haseltine, Lake, & Co., Patent Agents, Southampton Buildings, London, for an Invention of "AN IMPROVED MODE OF TREATING FERMENTED AND FERMENTABLE LIQUIDS FOR THE PRESERVATION OF THE SAME." A communication from abroad by Charles William Ramsay, of Brooklyn, New York, United States of America.

PROVISIONAL SPECIFICATION left by the said William Robert Lake at the Office of the Commissioners of Patents on the 3rd November 1880.

WILLIAM ROBERT LAKE, of the Firm of Haseltine, Lake, & Co., Patent Agents, Southampton Buildings, London. "AN IMPROVED MODE OF TREATING FERMENTED AND FERMENTABLE LIQUIDS FOR THE PRESERVATION OF THE SAME." A communication from abroad by Charles William Ramsay, of Brooklyn, New York, United States of America.

This Invention relates to beer, cider, wine, and other fermented and fermentable liquids.

The object of the said Invention is the preservation of these liquids by arresting or preventing the deleterious fermentation or souring of the same.

This subject has long occupied the attention of chemists, whose line of experiments has been conducted on the basis of the application of powerful acids used in the form of antiseptics. The germination of the yeast cells has been thereby temporarily arrested, but the presence of acid in beer has proved so detrimental that brewers have been compelled to abandon such processes.

The only treatment which has met with any favor is what is generally known as the "Pasteur process." This process consists in bottling the liquids, and then placing them in a suitable receiver, in which they are subjected to steam heat until they reach a high temperature, whereby the vitality or action of the yeast cells is temporarily arrested. This process however has also injured to a greater or less extent the beer or other liquids to which it has been applied.

It has therefore become a desideratum to devise means to destroy the yeast cells or other living organism without injuring the article treated. To this end my

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5

Invention consists in the mode of preventing or arresting fermentation in beer and other fermented and fermentable liquids by first vaporizing or atomizing such liquids, and then subjecting them while in the vapourous or atomic state to violent shocks or concussions, whereby the infusoria and other living organisms which induce fermentation are destroyed.

One convenient form of machine or apparatus for carrying the said Invention into practice is constructed as follows, that is to say:—

This apparatus has two or more cylindrical chambers placed contiguously to each other, so as to afford a duct to connect the cavities of the two chambers with each other, on or nearly on the level or plane of their axles. Each of these chambers is provided with a driving shaft, these shafts being geared so as to revolve in the opposite directions. They carry rotary arms or beaters, the outer ends of which are widened or extended to constitute broad beating surfaces, and between these beaters proper and the hubs of the arms, the width of the chambers or cavities may be reduced. The interior face of either one or both of the cylinders is serrated for a part of its circumference; these serrations form abutments, against which the material to be treated will be thrown by the beaters and broken up by impact, and thereby all the particles thereof will receive a severe shock or concussion.

The material to be treated is fed into the top part of the first treating chamber through an inlet or duct from any suitable closed reservoir, and from the bottom part of the second chamber. The material which has been treated is discharged in the form of a cold vapour through an outlet duct into a suitable receiver, where the vapours are allowed to recondense into fluid. The liquid in passing through the first chamber will be partly vaporized or dashed into spray by means of the beaters, and will be also acted upon by concussion against the serrations, and in the next cylinder the process will be continued and finished.

In this manner and by this process, beer, cider, wine, and other fermented or fermentable liquids may be deprived of all germ life, and thereby be kept from any future deleterious fermentation. Liquids thus treated may be left uninjured in bottles from which the corks are frequently removed and replaced, and the contents of such bottles will not become stale, flat, or sour.

SPECIFICATION in pursuance of the conditions of the Letters Patent and of an Order of the Lord Chancellor filed by the said William Robert Lake in the Great Seal Patent Office on the 20th May 1881.

William Robert Lake, of the Firm of Haseltine, Lake, and Co., Patent Agents, Southampton Buildings, London. "An Improved Mode of Treating Fermented and Fermentable Liquids for the Preservation of the same." A communication from abroad by Charles William Ramsay, of Brooklyn, New York, United States of America.

This Invention relates to beer, cider, wine, and other fermented and fermentable liquids.

The object of the said Invention is the preservation of these liquids by arresting or preventing the deleterious fermentation or souring of the same.

This subject has long occupied the attention of chemists, whose line of experiments has been conducted on the basis of the application of powerful acids, used in the form of antiseptics; the germination of the torula or yeast cell has been thereby temporarily arrested, but the presence of acid in beer has proved so detrimental that brewers have been compelled to abandon such processes.

The only treatment which has met with any favor is what is generally known as the "Pasteur process." This process consists in bottling the liquids and then placing them in a suitable receiver, in which they are subjected to steam heat until they reach a high temperature, whereby the vitality or action of the torula or yeast cell is temporarily arrested. This process however has also injured to a greater or less extent the beer or other liquids to which it has been applied.

It has therefore become a desideratum to devise means to destroy the torula or yeast cell, or other living organisms, without injuring the liquid treated. To this end my Invention consists in the mode of preventing or arresting fermentation in beer and other fermented and fermentable liquids by first vaporizing or atomizing such liquids, and then subjecting them while in the vaporous or atomic state to violent shocks or concussions, whereby the infusoria and other living organisms which induce fermentation are destroyed.

I do not limit myself to any particular machine or apparatus for carrying the said Invention into practice, but will describe an apparatus which will be found suitable for this purpose, and which is illustrated in the accompanying Drawing, in which,—

Figure 1 is a longitudinal section of the said apparatus, and

Figure 2 is a transverse section of the same.

This apparatus has two or more cylindrical chambers A and B placed contiguous to each other, as shewn in Figure 1, so as to afford a duct a to connect the cavities of the two chambers with each other on or nearly on the level or plane of their axles. Each of these chambers is provided with a driving shaft, as shewn at A^1 and B^1, these shafts being so geared as to revolve in the direction of the arrows. The said shafts carry the rotary arms or beaters A^2 and B^2. The outer ends of these arms are widened or extended to constitute broad beating surfaces at a^2 and at b^2, as shewn in Figure 2, and between these beaters proper and the hubs of the arms the width of the chambers or cavities may be reduced, as also shewn in Figure 2.

The interior face of the cylinder A is serrated, as shewn at a^3, for a part of its circumference, and the interior face of B is preferably also similarly serrated, as shewn at b^3. These serrations form abutments against which the material to be treated will be thrown by the beaters and broken up by impact, and thereby all the particles thereof will receive a severe shock or concussion.

The material to be treated is fed into the top part of the first treating chamber through an inlet or duct C from any suitable closed reservoir, and from the bottom part of the last treating chamber the material which has been treated is discharged in the form of a cold vapor through the outlet duct D into a suitable receiver, where the vapors are allowed to recondense into fluid.

It is essential that the outlet duct D should be placed at the bottom part of the chamber, as described. The liquid in passing through the first chamber will be partly vaporized or dashed into spray by means of the beaters, and will be also acted upon by concussion against the serrations, and in the next cylinder the process will be continued, and if desired finished.

In this manner and by this process beer, cider, wine, and other fermented or fermentable liquids may be deprived of all germ-life, and thereby be kept from any future deleterious fermentation. Liquids thus treated may be kept uninjured in bottles whose corks are frequently removed and replaced, and the contents of such bottles will not become stale, flat, or sour.

Having thus fully described the said Invention as communicated to me by my foreign correspondent, and the manner of performing the same, I wish it understood that I make no claim to or in respect of the construction of the apparatus illustrated in the accompanying Drawing, which I have shewn merely for the purpose of clearly explaining the manner of practising the said Invention, but I claim,—

The mode or process herein described of arresting or preventing fermentation in fermented or fermentable liquids by first vaporizing the liquid, and then subjecting it while in a vaporous state to violent shocks or concussions, for the purpose set forth.

In witness whereof, I, the said William Robert Lake, have hereunto set my hand and seal, this Nineteenth day of May, in the year of our Lord One thousand eight hundred and eighty one.

W^{M}. ROB^{T}. LAKE. (L.S.)

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1881.